Exposure Questionnaire" and was developed for and is currently in use in periodic health surveillance examinations of the California Occupational Safety and Health Administration (Cal/OSHA) industrial hygiene and safety engineer inspectors by participating physicians at eight clinics throughout California (Figure 1).

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The Health of Refugees and Employment

IN THE WAKE of continuing civil and military strife and suppressive behavior by governments around the world, there has been an upsurge in immigration to the United States. In the two-decade span since 1961, a total of 7,815,000 people came to this country; in the five years from 1977 through 1981 alone, 2,651,000—or 34% of the total— arrived. Of particular health concern have been the more than 670,000 refugees immigrating since 1975 from Southeast Asia.

A variety of conditions has been documented at centers where numbers of refugees have been diagnosed and treated, including hepatitis B antigenemia, tuberculosis, parasitism (often with several agents), anemia, malnutrition, gonococcal infections and Hansen's disease. Internment before entry into the US has led to further health impairment. Subsequent study has disclosed primary resistance to antituberculosis drugs among Indochinese, the sudden unexplained nocturnal deaths among previously healthy men, dental problems, unfavorable pregnancy outcomes and a lack of understanding in the health care system of indigenous beliefs and practices involving self-care and attitudes toward, and expectations of, Western medicine.

While many of the immigrants have established their own businesses in big city enclaves, others have entered the labor market. With the passage of time and the acquisition of citizenship status, it is likely that there will be applications for employment among this group in manufacturing companies engaged in defense production. Both inplant health services and physicians conducting preplacement examinations should add certain case-finding procedures to their examination protocols that ordinarily are not included in the prehire evaluation or are not indicated in today's medical reviews of most job candidates.

The following procedures are suggested as components of the preplacement examination of refugees, particularly of those persons from Southeast Asia:

- A general physical examination.
- Tuberculin skin testing with subsequent chest radiography of persons having positive skin reactions. Referral to local or state health departments should be effected for the initiation of therapy. The Centers for Disease Control recommend further that a bacteriologic examination with smear culture and susceptibility studies be done in all suspected or follow-up cases.
- Serologic test for syphilis.
- Serologic test for hepatitis with forwarding of results when sources of general health and dental care have been established by the applicant or employee.
- Stool examination for intestinal parasites.
- Thick and thin blood smear tests for malaria for all persons with fever.
- Immunizations—tetanus toxoid, trivalent oral polio vaccine and others as indicated by age, previous immunization history or job assignment.

Particular clinical scrutiny must be conducted of food handlers, and appropriate treatment regimens initiated if parasitism involving *Giardia* and *Entamoeba histolytica* is encountered. Hepatitis B in a food handler presents a public health risk.

Certain culturally offensive practices should be avoided in the health assessment of Southeast Asian refugees:

- Complete disrobing of female patients (applicants or employees).
- Pelvic examination. This is usually not included in occupational medical practice, but, if indicated, it is not to be carried out on the first contact, and preferably should be done by a woman physician.
- Visible presence of an interpreter of the opposite sex during a breast or gynecologic examination.
- Negative judgmental attitudes toward traditional healing practices.
- Withdrawing numerous tubes of blood without proper warning or explanation.

As employment implies future visits to an occupational health facility, strict adherence to these recommendations will allow the establishment of trust and will ease further contacts required by either illness or surveillance programs.

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Health Risks in the Operating Room

ALTHOUGH HEALTH RISKS to patients undergoing surgical procedures have been widely recognized for many decades, it is only since the 1970s that the health risks to workers in the operating room have received similar attention.

There are several possible sources of health risk to operating room-based personnel. The most studied source is pollution from gases, which include volatile anesthetics, methyl methacrylate (used in surgical cements) and various sprays. Although more speculative, other sources include ionizing radiation, infection and stress. While causal relationships have not been firmly established, chronic exposure to anesthetic gases is most often implicated as the etiologic agent of increased risk.

Epidemiologic studies have identified several possible health hazards to operating room personnel. The most widely studied effects deal with reproductive outcomes. For example, it is generally accepted that female staff working in the operating room have a spontaneous abortion rate about twice that of various control groups. The results are equivocal for

the wives of exposed male staff. Similarly, there are conflicting results concerning other reproductive outcomes such as congenital anomalies in offspring, sperm abnormalities, infertility, stillbirths and altered sex ratio.

Other health risks associated with operating room exposure include cancer (such as leukemia and lymphoma), hepatic disease (besides hepatitis B), suicide and impaired psychomotor abilities. Again, these results are not consistent among the various studies and the case for increased risk has not been proved.

Unfortunately, many of these epidemiologic studies suffer from similar shortcomings—namely, their retrospective design, heavy reliance on questionnaires and grossly inadequate exposure data. Moreover, many studies were done before the use of newer anesthetic agents and modern gas scavenging systems. Thus, only a few associations appear to be valid today and contemporary, well-designed studies are warranted.

Nonetheless, recently developed technologies should be used to reduce the health risks to these workers. Specifically, personal dosimeters for gases and radiation should be used. In addition, protection from ionizing radiation (including thyroid shields and leaded glasses) should be available and the ambient levels of trace anesthetic gases in the operating room should be evaluated and minimized. Clearly, continued monitoring of these health workers is justified.

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Use of Personal Respiratory Protective Devices (Respirators)

"CAN THIS WORKER safely use a respirator?" is a question that clinicians are frequently asked. While it would be optimal to eliminate or completely enclose all workplace inhalational hazards, it is frequently necessary to rely on respirators worn by a worker for protection. These devices range from simple disposable filter masks to complex, heavy, self-contained breathing apparatuses such as those used by fire fighters.

Several factors affect medical fitness for using respirators. Certain physical characteristics such as weight may preclude their use. Certain respirators may impose loads on the respiratory or cardiac systems or both. A recent report suggests that as much as 10% of workers may have psychological problems regarding their use. The use of contact lenses while wearing respirators needs careful consideration. Finally, appropriate safety orientation and a worker's knowledge of the chemical hazards to which she or he is exposed is important. The recently enacted federal Right to Know Law mandates such worker training about chemical hazards for workers in many industries.

Fortunately, most respirators are well tolerated by most workers, and an extensive medical evaluation is rarely needed. Clinicians can frequently obtain information about respirators and the hazards against which they protect from a plant's occupational health service or industrial hygienist. Governmental (such as the Occupational Safety and Health Administration [OSHA]) and private or university consultants can also be of help. Finally, directly observing a worker using the respirator may be invaluable.

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Employee Drug and Alcohol Abuse—Industry's Approach

THE ANNUAL COST to industry of employee drug and alcohol use has been estimated at as high as $16.4 billion. A confidential mail survey of national organizations conducted in 1981 found that 80% of the respondents had to deal directly with drug problems. While alcohol was the most commonly abused substance (82%), marijuana incidents occurred in more than half the firms (55%) and both heroin and cocaine use was reported by a fifth of the organizations. The survey confirmed that drug usage in the workplace is relatively widespread and is not confined to blue collar or minority groups.

Employers use a variety of means to combat employee drug and alcohol use. A prerequisite to any technique is the development of a company policy outlining an organization's position on drug and alcohol abuse. The most widely accepted procedure is the establishment of an occupational treatment program whose primary target is workers whose job performance is impaired. This employee assistance program is a confidential service that intervenes with troubled workers, whether self or supervisor referred. It assumes that an employee's value to the organization is based on substantial training and time investment, a value that frequently does not extend to the youthful abuser. Young employees, having a different work ethic, do not respond favorably to constructive confrontation. Intervention varies with the particular program from simple triage to diagnostic evaluation, motivation, referral and follow-up. The treatment—normally subsidized by the company but provided at an accredited treatment facility not usually affiliated with the firm—is considered a condition of continued employment. Most employee assistance programs, however, reach only 5% of the target population.

Another method of providing a drug-free workplace involves urine drug screening on all employment applicants and selective screening of suspected abusers. Urine toxicology screening is an effective test to determine the presence of drugs in the urine. Thin-layer chromatography and radioimmune assays or modified techniques, such as the enzyme multiplied immunoassay technique, test for a wide spectrum of drugs including marijuana, phencyclidine hydrochloride, heroin, opiates and amphetamines. A great deal of weight is often placed on positive findings; however, the test does not provide information about the pattern of use and cannot distinguish between an occasional user and a chronic abuser. The